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## Ternary Iron Phase Diagram Updates

Ternary iron phase diagrams have been critically evaluated and published as a series of monographs by the cooperating societies: ASM International, Indian Institute of Metals, and Institute of Materials (UK). Updates on iron ternaries are published regularly in this journal.

This issue carries updates on six ternary systems of practical importance. All of these (except Cr-Fe-Si) were first reviewed by Raynor and Rivlin in the 1980s and updated by this reviewer in 1994. The Al-Cr-Fe system is of relevance in the development of new light-weight alloys, which have the protective coating of aluminum oxide. The study of the Cr-Fe-Mn system is useful in practical applications such as high Mn austenitic steels and Mn-substituted stainless steels. The Cr-Fe-Ni system forms the basis of a number of stainless steels and the prevention of the formation of the brittle  $\sigma$  phase in them is of crucial importance. In the Cr-Fe-Si system, the effect of Si on the stability of  $\sigma$  and on the miscibility gap of the Fe-Cr system is of practical interest. The role of Mo in high-temperature alloys and in resisting pitting in stainless steels requires the study of the Fe-Mo-Ni system. The Fe-Si and Fe-Ni alloys form the basis of well-known soft magnetic materials and their combination in the Fe-Ni-Si ternary system can result in interesting magnetic properties.

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*Phase Diagrams of*  
*Ternary Iron Alloys*  
Parts 1, 2, 3, 5, and 6